REMARKS/ARGUMENTS

In the Non-final Office Action mailed March 31, 2004, claims 1-54 were examined. Applicants acknowledge with appreciation the allowability of claims 34, 35, and 53-54.

In the Non-final Office Action mailed March 31, 2004, claims 12 and 13 were objected to for informalities. Also, the claims were rejected as follows:

- Claims 1-4, 11-13, and 19 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent No. 5,335,492 to Zirkel ("the Zirkel patent").

- Claims 36-38, 41, 42, 45-47, 49, and 50 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,143,700 to Anguil.

- Claim 5 was rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Zirkel patent.

- Claims 1-4, 11-13, 19, and 20 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 5,326,537 to Cleary ("the Cleary patent") in view of the Zirkel patent.

- Claims 6-10 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Zirkel patent in view of U.S. Patent No. 5,814,284 to Schluter ("the Schluter patent").

- Claim 14 was rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Zirkel patent, and further in view of the Anguil patent.

- Claims 21-27 and 32 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Schluter patent.

- Claims 28-30 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Schluter patent, and further in view of the Anguil patent.

- Claims 39, 40, and 48 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Anguil patent in view of the Schluter patent.

Applicants acknowledge with appreciation the allowability of claims 15-18, 31, 43, and 44, if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants also acknowledge the allowability of non-rejected claims 51 and 52.

Applicants respectfully traverse the rejections of claims 1-14, 19-30, 32, 33, 36-42, and 45-50, for the reasons set forth below.

The Invention

Before addressing the specific claim limitations, it will be helpful first to briefly summarize the invention of the pending claims.

The present invention resides in an integrated apparatus for effectively and conveniently oxidizing and reducing pollutants in a variety of lean-burn environments. These environments include various types of engines, such as diesel internal combustion, dual-fuel (diesel and natural gas), dedicated spark-ignited lean-burn, and homogenous charge compression ignition. The apparatus preferably is positioned downstream of the turbocharger in the exhaust duct of a lean-burn engine. The apparatus allows for treatment for particulate matter (PM), hydrocarbon (HC), carbon monoxide (CO) and nitrogen oxides (NOx) in one integrated system,

and allows for recovery of heat from these reactions for preheat of the incoming exhaust stream to raise the internal catalyst temperature.

The apparatus makes use of a catalyzed diesel particulate filter (DPF), and also can include a lean-NOx catalyst (LNC), and/or a diesel oxidation catalyst (DOC), integrated together within a novel heat exchanger design. The heat exchanger is preferably in a spiral configuration, but can also be in other known configurations, such as shell-and-tube, plate-and-frame, rotating bed, or flow-switching.

The DPF provides catalytic treatment of HC, CO and PM. The DPF captures PM from the stream, and is regenerated to prevent pressure drop from collected PM on the filter becoming excessive. The DPF is preferably a wall flow particulate filter made of a ceramic material such as cordierite, silicon carbide, mullite, or a number of other high temperature porous ceramic substrates. Alternative configurations to the wall-flow filter geometry include small pore ceramic foams, sintered metal meshes, and ceramic fiber yarns. All provide large filtration areas with pore sizes small enough to provide a filtering function.

The DPF material also can be coated or impregnated with a catalytic material to lower the necessary temperature for regeneration. Catalytic materials include precious metals such as platinum or palladium, or non-precious metal compounds such as ceramic oxides (*e.g.*, Mn-O).

The apparatus also can employ a LNC in the appropriate temperature regions of the heat exchanger for the reduction of oxides of nitrogen. The LNC reacts the NOx with HC, that either is present in the entering stream, or alternatively is provided by a fuel injector, as discussed below. The LNC can be placed adjacent to the DPF, or elsewhere upstream of the DPF. Alternatively, the LNC can be deposited on the upstream surfaces of the DPF. The LNC preferably has a monolithic structure, but also can be comprised of ceramic or metal foam. Suitable active metals include platinum, iron, tin, or copper. Washcoats can be either alumina-

or zeolite-based. Also, high-surface-area alumina can function as a LNC with the addition of precious or base metals.

The apparatus also can employ a DOC in the appropriate temperature regions of the heat exchanger for oxidation of stream constituents. DOCs can use precious metals such as platinum, palladium, or gold, and they can be impregnated on alumina or zeolite washcoats.

The apparatus also can employ a fuel injector to inject HC into the stream at the inlet passage. This injected HC, when reacted over the LNC, DOC, or catalyzed DPF, can elevate the temperature at the DPF to improve the oxidation rate of the PM for regeneration. The apparatus also employs pressure, temperature and engine speed sensors, and also a controller to regulate the rate of HC injection to appropriate levels. Alternatively, an electric resistance heater can be used to heat the fluid stream in the inlet passage, if necessary. Further, the HC injection can be incorporated into a burner system to allow flame-based heating of the catalyst if the catalyst is below its light-off temperature.

The apparatus enables a modern engine to achieve the increasingly difficult standards for heavy-duty engines, without significant changes in fuel injection equipment, and without employing advanced exhaust gas recirculation. The compact size and excellent noise abatement qualities of the apparatus also allow it to replace the existing muffler or silencer for an engine.

The Objection to Claims 12 and 13 for Informalities

On page 2 of the Office Action, originally filed, dependent claims 12 and 13 were rejected for informalities. In particular, the Examiner stated the following: "It appears that claims 12-13 should depend from claim 11 since the 'diesel oxidation catalyst' is not recited until claim 11."

Applicants have amended dependent claims 12 and 13 to be dependent upon claim 11 instead of claim 10. Accordingly, applicants respectfully request withdrawal of the objection to dependent claims 12 and 13.

The Rejection of Claims 1-4, 11-13, and 19 Based on the Zirkel Patent

On pages 2 and 3 of the Office Action, independent claim 1, and dependent claims 2-4, 11-13, and 19, were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by the Zirkel patent. Applicants respectfully traverse this rejection.

The Zirkel patent discloses a filter for the removal of harmful constituents from exhaust gases output from an internal combustion engine. Regarding the Zirkel patent, the Examiner states the following:

> Zirkel discloses an apparatus for processing a fluid stream, comprising:
> a heat exchanger having first and second spaced-apart walls that define an inlet passage (9) and an outlet passage (7) for the fluid stream, wherein the walls are configured to transfer heat from the outlet passage to the inlet passage (see Figure 2); and a diesel particulate filter (1) integrally connected to the heat exchanger and positioned to transmit the fluid stream from the inlet passage to the outlet passage, wherein the diesel particulate filter is configured to oxidize carbon monoxide and hydrocarbons, and to collect and oxidize particulate matter present in the fluid stream.

The Examiner's reliance on the Zirkel patent is misplaced. The Zirkel patent *fails* to teach or suggest "first and second spaced-apart walls that define an inlet passage and an outlet passage," "first and second spaced apart walls . . . configured to transfer heat from the outlet passage to the inlet passage," or "a diesel particulate filter . . . configured to oxidize carbon monoxide and hydrocarbons, and to collect and oxidize particulate matter present in the fluid stream," as required by independent claim 1.

In contrast to the requirements of independent claim 1, the Zirkel patent merely teaches walls defining the inlet passage 9, which are *not* the same walls that define the outlet passage 4 (see Figs. 1 and 2). Also, the walls in the Zirkel patent are *not* configured to transfer heat from the outlet passage to the inlet passage. In the Zirkel patent, the transfer of heat is accomplished using heat exchanger pipes 8 (see column 4, lines 25-30 and 44-49, and column 5, lines 23-31). In addition, the Zirkel patent makes *no* mention of a diesel particulate filter configured to oxidize carbon monoxide and hydrocarbons. In contrast, the Zirkel patent merely teaches that the filter is for the removal of harmful constituents from the exhaust gas of an internal combustion engine, in particular, for the removal of soot (see column 1, lines 5-27).

For these reasons, this § 102 rejection of independent claim 1, and dependent claims 2-4, 11-13, and 19, is improper and should be withdrawn.

The Rejection of Claims 36-38, 41, 42, 45-47, 49, and 50 Based on the Anguil Patent

On pages 3 and 4 of the Office Action, independent claims 36 and 46; and dependent claims 37, 38, 41, 42, 45, 47, 49, and 50, were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by the Anguil patent. Applicants respectfully traverse this rejection.

The Anguil patent discloses a ceramic filter for use in the removal of particulate material in a catalytic incineration system. Regarding the Anguil patent, the Examiner states the following:

> Regarding claims 36, 37, 46, Anguil discloses a method for processing a fluid stream, comprising:
> preheating the fluid stream by heat exchange using an exiting treated fluid stream; and oxidizing carbon monoxide and hydrocarbons, and reducing nitrogen oxides present in the preheated fluid stream, to produce the exiting treated fluid stream (see Figure 1, col. 3, lines 4-10).

The Examiner's reliance on the Anguil patent is misplaced. The Anguil patent *fails* to teach or suggest "oxidizing carbon monoxide and hydrocarbons, and collecting and oxidizing particulate matter in the preheated fluid stream, to produce the exiting treated fluid stream," as required by independent claim 36; or "oxidizing carbon monoxide and hydrocarbons, and reducing nitrogen oxides present in the preheated fluid stream, to produce the exiting treated fluid stream," as required by independent claim 46.

In contrast to the requirements of independent claims 36 and 46, the Anguil patent merely teaches that the ceramic filter removes particulate material *before* the gas enters a heat exchanger. The Anguil patent makes *no* mention of collecting and oxidizing particulate matter, or reducing nitrogen oxides, in a *preheated* fluid stream. Furthermore, the Anguil patent make *no* mention of oxidizing carbon monoxide and hydrocarbons.

For these reasons, this § 102 rejection of independent claims 36 and 46, and dependent claims 37, 38, 41, 42, 45, 47, 49, and 50, is improper and should be withdrawn.

The Rejection of Claim 5 Based on the Zirkel Patent

On page 4 of the Office Action, dependent claim 5 was rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Zirkel patent. Applicants respectfully traverse this rejection.

Regarding the Zirkel patent, the Examiner states the following:

> Zirkel discloses an oxidation catalyst; however, fails to disclose the catalyst comprises a material selected from the group of platinum, palladium, and ceramic oxide.
>
> It is well known to those with ordinary skill in the art that an oxidation catalyst comprises at least one of Pt, Pd. Therefore, such disclosure by Zirkel is notoriously well known in the art so as to be proper for official notice.

The Examiner's reliance on the Zirkel patent is misplaced. As discussed above, the Zirkel patent *fails* to teach or suggest "first and second spaced-apart walls that define an inlet passage and an outlet passage," "first and second spaced apart walls . . . configured to transfer heat from the outlet passage to the inlet passage," or "a diesel particulate filter . . . configured to oxidize carbon monoxide and hydrocarbons, and to collect and oxidize particulate matter present in the fluid stream," as required by independent claim 1. For these reasons, this § 103 rejection of dependent claim 5, which depends from independent claim 1, is improper and should be withdrawn.

The Rejection of Claims 1-4, 11-13, 19, and 20 Based on the Cleary Patent in View of the Zirkel Patent

On pages 5 and 6 of the Office Action, independent claim 1, and dependent claims 2-4, 11-13, 19, and 20, were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Zirkel patent. Applicants respectfully traverse this rejection.

The Cleary patent discloses a portable catalytic oxidizer that includes a spiral heat exchanger for the treatment of hydrocarbon vapors resulting from hydrocarbon spills. Regarding the Cleary and Zirkel patents, the Examiner states the following:

> Regarding claims 1, 11, Cleary discloses an apparatus for processing a fluid stream, comprising:
> a heat exchanger having first and second spaced-apart walls that define an inlet passage and an outlet passage for the fluid stream, wherein the walls are configured to transfer heat from the outlet passage to the inlet passage (see Figure 4); and an oxidation catalyst integrally connected to the heat exchanger to oxidize hydrocarbons, and positioned to transmit the fluid stream from the inlet passage to the outlet passage (see col. 8, lines 64-67); however, fails to disclose a diesel particulate filter for collecting an oxidizing particulate matter present in the fluid stream. Zirkel teaches that it is conventional in the art, to utilize a diesel particulate filter (1) for collecting and oxidizing particulate matter present in the fluid stream (see Figure 1).

In forming the § 103 rejection of independent claim 1, and dependent claims 2-4, 11-13, 19, and 20, the Examiner *erroneously* assumed that one having ordinary skill in the art would have been led to combine the disparate teachings of the Cleary and Zirkel patents. It would *not* have been obvious to one having ordinary skill in the art at the time the invention was made to combine the catalytic oxidizer taught in the Cleary patent with the filter taught in the Zirkel patent due to their disparate designs and uses.

The Cleary patent teaches that its catalytic oxidizer is portable. and designed for the clean up of hydrocarbon spills in remote sites. The Cleary patent makes no mention of using the catalytic oxidizer to remove particulate matter. In contrast to the teachings of the Cleary patent, the Zirkel patent's filter is designed for the removal of harmful constituents from the exhaust of an internal combustion engine, in particular, soot. Accordingly, it appears that the Examiner's obviousness conclusion is based on Applicants' specification (hindsight reconstruction).

Even if one of ordinary skill in the art at the time the invention was made *erroneously* combined the teachings of the Cleary and Zirkel patents, the resulting combination would *not* teach or suggest the requirements of independent claim 1. In particular, *neither* the Cleary patent or the Zirkel patent teach or suggest "a diesel particulate filter . . . configured to oxidize carbon monoxide and hydrocarbons, and to collect and oxidize particulate matter present in the fluid stream," as required by independent claim 1. In addition to the Examiner's admission that the Cleary patent *fails* to disclose a diesel particulate filter, the Zirkel patent makes *no* mention of a filter configured to oxidize carbon monoxide and hydrocarbons.

For these reasons, this § 103 rejection of independent claim 1, and dependent claims 2-4, 11-13, 19, and 20, is improper and should be withdrawn.

The Rejection of Claims 6-10 Based on the Zirkel Patent in View of the Schluter Patent

On pages 6 and 7 of the Office Action, dependent claims 6-10 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Zirkel patent in view of the Schluter patent. Applicants respectfully traverse this rejection.

The Schluter patent discloses a plant for the reduction of nitrogen oxide in waste gases output from a furnace. Regarding the Zirkel and Schluter patents, the Examiner states the following:

> Regarding claims 6-8, Zirkel discloses all of the claimed limitations as applied to claim 1 above, however, fails to disclose a lean-NOx catalyst located upstream of the diesel oxidation catalyst wherein the lean-NOx catalyst is configured to reduce nitrogen oxides in the stream. Schluter teaches that it is conventional in the art, to utilize a NOx catalyst to reduce NOx in the exhaust gas (see col. 4, lines 29-34).

Thus, the Examiner merely references the Schluter patent for the teaching that it is conventional in the art to utilize a NOx catalyst to reduce NOx in an exhaust gas.

In forming the § 103 rejection of dependent claims 6-10 the Examiner *erroneously* assumed that one having ordinary skill in the art would have been led to combine the disparate teachings of the Zirkel and Schluter patents. It would *not* have been obvious to one having ordinary skill in the art at the time the invention was made to combine the filter taught in the Zirkel patent with the plant for the reduction of nitrogen oxide in furnace waste gases taught in the Schluter patent. More specifically, the Zirkel patent's filter is used for a very different purpose, *i.e.*, the removal of harmful constituents form the exhaust of an internal combustion engine, in particular, soot, from the plant for the reduction of nitrogen oxide in furnace waste gases taught in the Schluter patent. Accordingly, it appears that the Examiner's obviousness conclusion is based on Applicants' specification (hindsight reconstruction).

Even if one of ordinary skill in the art at the time the invention was made *erroneously* combined the teachings of the Zirkel and Schluter patents, the resulting combination would *not* teach or suggest the requirements of independent claim 1, the independent claim from which claims 6-10 depend. In particular, *neither* the Zirkel patent or the Schluter patent teach or suggest "first and second spaced-apart walls that define an inlet passage and an outlet passage," "first and second spaced-apart walls . . . configured to transfer heat from the outlet passage to the inlet passage," and "a diesel particulate filter . . . configured to oxidize carbon monoxide and hydrocarbons, and to collect and oxidize particulate matter present in the fluid stream," as required by independent claim 1.

For these reasons, this § 103 rejection of dependent claims 6-10, which depend from independent claim 1, is improper and should be withdrawn.

The Rejection of Claim 14 Based on the Cleary Patent in View of the Zirkel and Anguil Patents

On page 7 of the Office Action, dependent claim 14 was rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Zirkel patent, and further in view of the Anguil patent. Applicants respectfully traverse this rejection.

Regarding the Cleary and Anguil patents, the Examiner states the following:

> The modified Cleary apparatus disclose all the claimed limitations as discussed in claim 1 above, however, fails to disclose a fuel injector located and configured to inject hydrocarbons into the inlet passage. Anguil teaches that it is conventional in the art, to utilize a fuel injector located and configured to inject hydrocarbons into the inlet passage (see col. 2, lines 63-68).

In forming the § 103 rejection of dependent claim 14, the Examiner *erroneously* assumed that one having ordinary skill in the art would have been led to combine the disparate teachings of the Cleary patent with the teachings of either the Zirkel patent or the Anguil patent. It would *not* have been obvious to one having ordinary skill in the art at the time the invention was made to combine the portable catalytic oxidizer taught in the Cleary patent with the filter designed for the removal of harmful constituents from the exhaust of an internal combustion engine, in particular, soot, taught in the Zirkel patent, or the ceramic filter construction for removal of particulate material in a catalytic incineration system taught in the Anguil patent. Accordingly, it appears that the Examiner's obviousness conclusion is based on Applicants' specification (hindsight reconstruction).

Even if one of ordinary skill in the art at the time the invention was made *erroneously* combined the teachings of the Cleary patent with the teachings of the Zirkel and Anguil patents, the resulting combination would *not* teach or suggest the requirements of independent claim 1, the independent claim from which claim 14 depends. In particular, *neither* the Cleary patent, the Zirkel patent, or the Anguil patent teach or suggest "a diesel particulate filter . . . configured to oxidize carbon monoxide and hydrocarbons, and to collect and oxidize particulate matter present in the fluid stream," as required by independent claim 1.

For these reasons, this § 103 rejection of dependent claim 14, which depends from independent claim 1, is improper and should be withdrawn.

The Rejection of Claims 21-27 and 32 Based on the Cleary Patent in View of the Schluter Patent

On pages 8 and 9 of the Office Action, independent claim 21, and dependent claims 22-27 and 32, were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Schluter patent. Applicants respectfully traverse this rejection.

Regarding the Cleary and Schluter patents, the Examiner states the following:

> Regarding claims 21, 24, and 25, Cleary discloses an apparatus for processing a fluid stream, comprising:
> a heat exchanger having first and second spaced-apart walls that define an inlet passage and an outlet passage for the fluid stream, wherein the walls are configured to transfer heat from the outlet passage to the inlet passage (see Figure 4);
> a diesel oxidation catalyst integrally connected to the heat exchanger, between the inlet and outlet passage, wherein the diesel oxidation catalyst is configured to oxidize carbon monoxide and hydrocarbons in the fluid stream; however, fails to disclose a lean-NOx catalyst located upstream of the diesel oxidation catalyst wherein the lean-NOx catalyst is configured to reduce nitrogen oxides in the stream. Schluter teaches that it is conventional in the art, to utilize a NOx catalyst to reduce NOx in the exhaust gas (see col. 4, lines 29-34).

In forming the § 103 rejection of independent claim 21, and dependent claims 22-27 and 32, the Examiner *erroneously* assumed that one having ordinary skill in the art would have been led to combine the disparate teachings of the Cleary patent with the teachings of the Schluter patent. It would *not* have been obvious to one having ordinary skill in the art at the time the invention was made to combine the portable catalytic oxidizer taught in the Cleary patent with the plant for the reduction of nitrogen oxide in furnace waste gases taught in the Schluter patent due to their disparate designs and uses. Accordingly, it appears that the Examiner's obviousness conclusion is based on Applicants' specification (hindsight reconstruction).

Even if one of ordinary skill in the art at the time the invention was made *erroneously* combined the teachings of the Cleary patent with the teachings of the Schluter patent, the resulting combination would *not* teach or suggest the requirements of independent claim 21, or its depending claims 22-27 and 32. In particular, *neither* the Cleary patent or the Schluter patent teach or suggest "a diesel oxidation catalyst . . . configured to oxidize carbon monoxide and hydrocarbons in the fluid stream," as required by independent claim 21.

For these reasons, this § 103 rejection of independent claim 21, and dependent claims 22-27 and 32, is improper and should be withdrawn.

The Rejection of Claims 28-30 Based on the Cleary Patent in View of the Schluter and Anguil Patents

On pages 9 and 10 of the Office Action, dependent claims 28-30 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Cleary patent in view of the Schluter patent, and further in view of the Anguil patent. Applicants respectfully traverse this rejection.

Regarding the Cleary and Anguil patents, the Examiner states the following:

> Regarding claims 28-30, the modified Cleary apparatus disclose all the claimed limitations as discussed in claim 21 above, however, fails to disclose a temperature sensor and a controller, responsive to the temperature signal, for controlling the rate at which the fuel injector injects hydrocarbons into the inlet passage. Anguil teaches that it is conventional in the art, to utilize a temperature sensor at a position adjacent to the oxidation catalyst and a controller, responsive to the temperature signal, for controlling the rate at which the fuel injects hydrocarbons into the inlet passage (see col. 2, lines 63-68).

In forming the § 103 rejection of dependent claims 28-30, the Examiner *erroneously* assumed that one having ordinary skill in the art would have been led to combine the disparate teachings of the Cleary patent with the teachings of the Schluter patent or the Anguil patent. As discussed above, it would *not* have been obvious to one having ordinary skill in the art at the time the invention was made to combine the portable catalytic oxidizer taught in the Cleary patent with the plant for the reduction of nitrogen oxide in furnace waste gases taught in the Schluter patent, or the ceramic filter construction for removal of particulate material in a catalytic incineration system taught in the Anguil patent due to their disparate designs and uses. In addition, it would *not* have been obvious to one having ordinary skill in the art at the time the invention was made to combine the Schluter patent's plant for the reduction of nitrogen oxide in furnace waste gases with the Anguil patent's ceramic filter construction for use in removing

particulate material in a catalytic incineration system. Accordingly, it appears that the Examiner's obviousness conclusion is based on Applicants' specification (hindsight reconstruction).

Even if one of ordinary skill in the art at the time the invention was made *erroneously* combined the teachings of the Cleary patent with the teachings of the Schluter and Anguil patents, the resulting combination would *not* teach or suggest the requirements of independent claim 21, from which claims 28-30 depend. In particular, *neither* the Cleary patent, the Schluter patent, or the Anguil patent teach or suggest "a diesel oxidation catalyst . . . configured to oxidize carbon monoxide and hydrocarbons in the fluid stream," as required by independent claim 21.

For these reasons, this § 103 rejection of dependent claims 28-30, which depend from independent claim 21, is improper and should be withdrawn.

The Rejection of Claims 39, 40, and 48 Based on the Anguil Patent in View of the Schluter Patent

On page 10 of the Office Action, dependent claims 39, 40, and 48 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Anguil patent in view of the Schluter patent. Applicants respectfully traverse this rejection.

Regarding the Anguil and Schluter patents, the Examiner states the following:

> Regarding claim 39, 40, and 48, Anguil discloses all the claimed limitations as discussed in claims 36, 46 above, however, fails to disclose reducing nitrogen oxides present in the preheated fluid stream using a lean-NOx catalyst. Schluter teaches that it is conventional in the art, to reduce nitrogen oxides present in the preheated fluid stream using a lean-NOx catalyst (see Figure 4, col. 4, lines 29-32).

In forming the § 103 rejection of dependent claims 39, 40, and 48, the Examiner *erroneously* assumed that one having ordinary skill in the art would have been led to combine the disparate teachings of the Anguil patent with the teachings of the Schluter patent, see previous discussion. Even if one of ordinary skill in the art at the time the invention was made *erroneously* combined the teachings of the Anguil patent with the teachings of the Schluter patent, the resulting combination would *not* teach or suggest the requirements of independent claims 36 and 46, the independent claims from which claims 39, 40, and 48 depend. In particular, *neither* the Anguil patent or the Schluter patent teach or suggest "oxidizing carbon monoxide and hydrocarbons . . . to produce the exiting treated fluid stream," as required by independent claims 36 and 46.

For these reasons, this § 103 rejection of dependent claims 39, 40, and 48, which depend from either independent claim 36 or 46, is improper and should be withdrawn.

Allowable Subject Matter

On page 11 of the Office Action, the Examiner indicated that claims 15-18, 31, 43, and 44 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." As discussed above, Applicants believe that independent claims 1, 21, and 36 are allowable over the cited references. Accordingly, Applicants believe that dependent claims 15-18, 31, 43, and 44, which depend from independent claims 1, 21, and 36, are allowable, and respectfully requests removal of this objection to dependent claims 15-18, 31, 43, and 44.

Conclusion

This application should now be in condition for a favorable action. Applicants respectfully request entry of the Amendment and an early allowance of all claims herein. If for any reason the Examiner finds the application other than in allowance, the Examiner is requested to call the undersigned attorney at the below telephone number to discuss the steps necessary for

placing the application in condition for allowance. If there are any fees due in connection with the filing of this amendment, please charge the fees to our Deposit Account No. 19-1853.

Respectfully submitted,
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